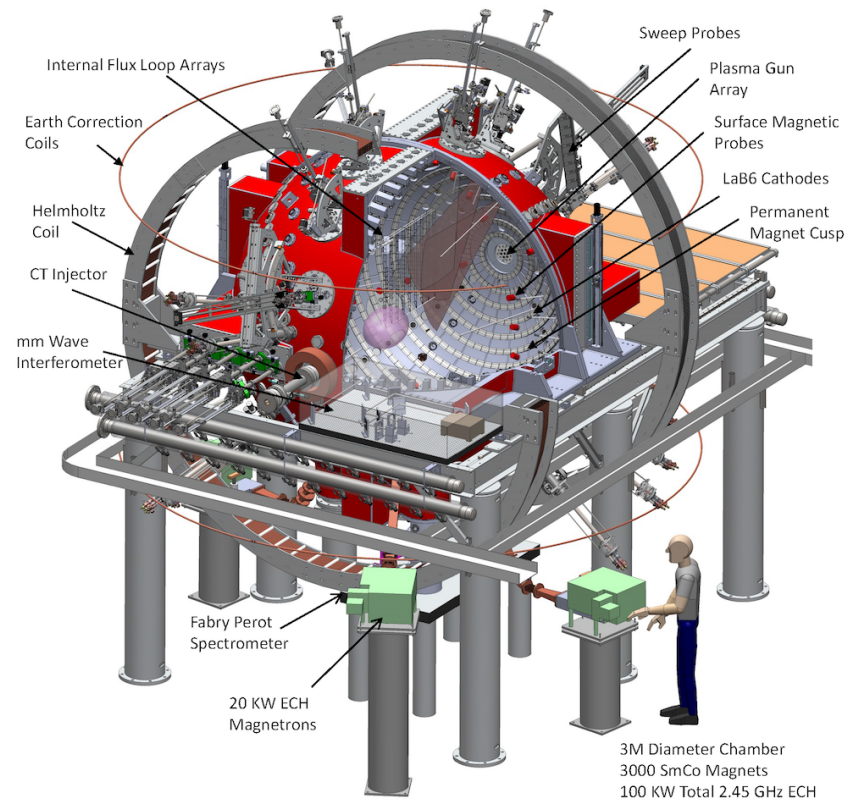# Some open issues on reconnection

- The trigger/onset problem

- Effect of reconnection on turbulence (e.g., dissipation)

- Effect of turbulence on reconnection

- 3D reconnection

- Heating and acceleration by reconnection

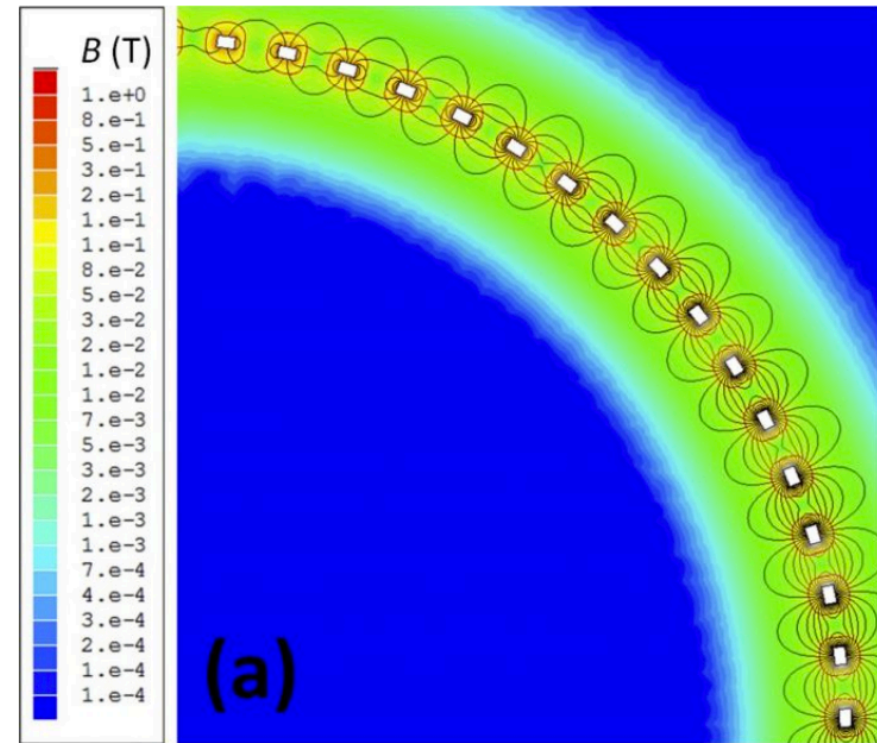- Controlling reconnection in fusion plasmas

and more

New or recent experimental developments

- Extending basic experiments to new regimes
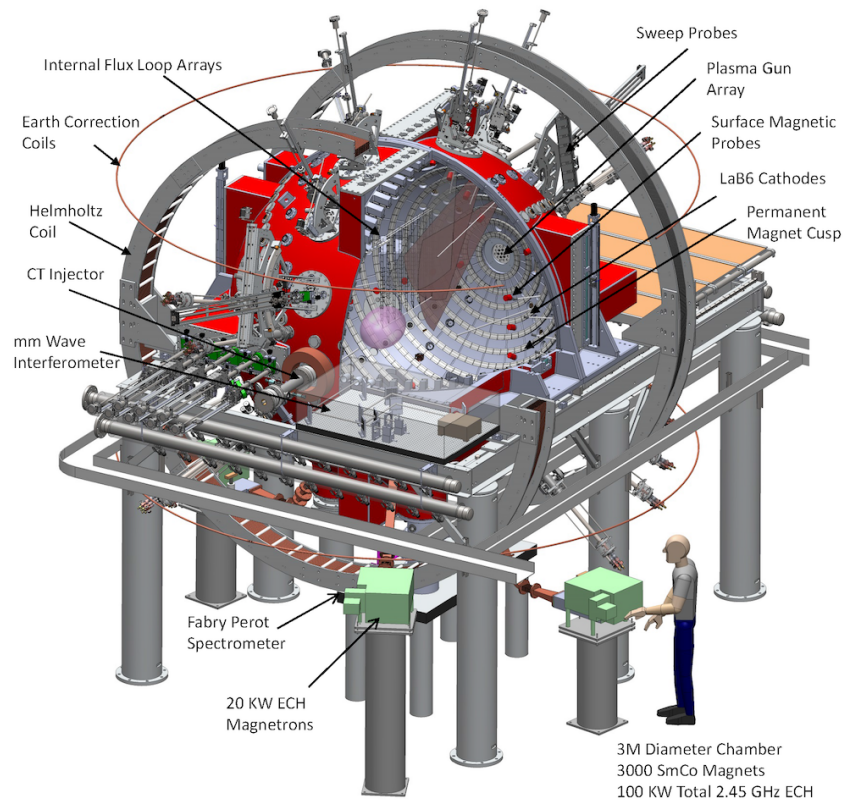
The Big Red Ball (Wisconsin)

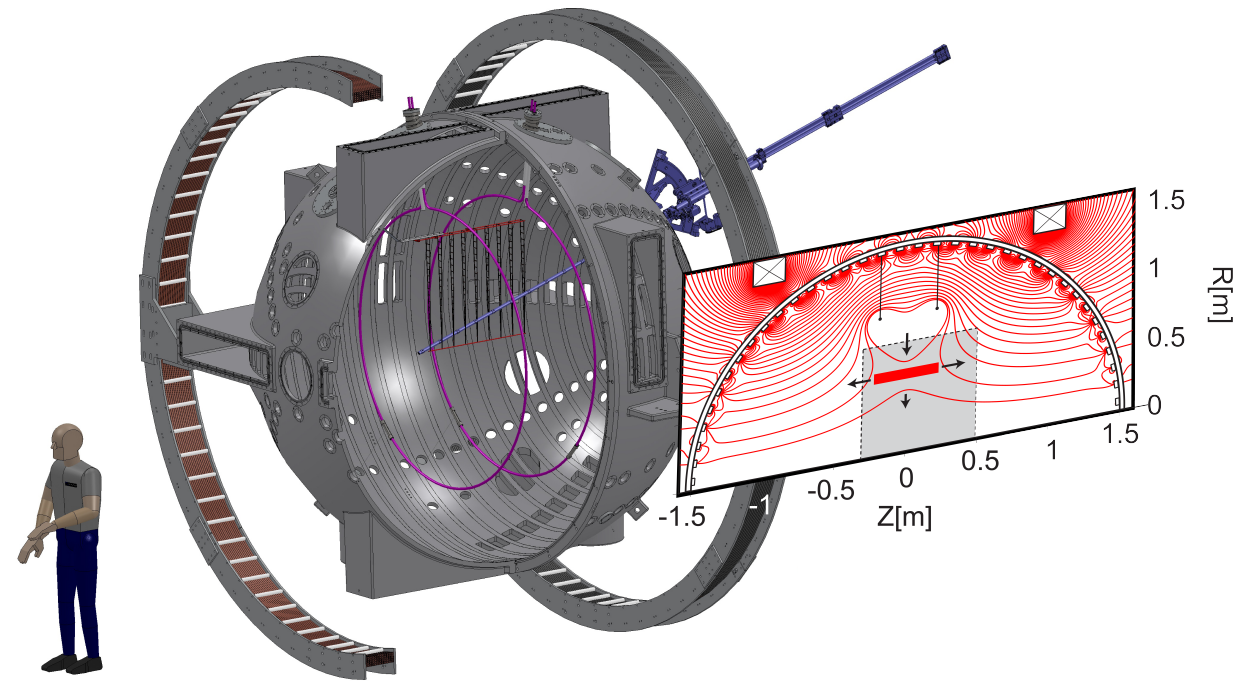Can confine an ~ field-free plasma (very high beta)

New or recent experimental developments

- Extending basic experiments to new regimes
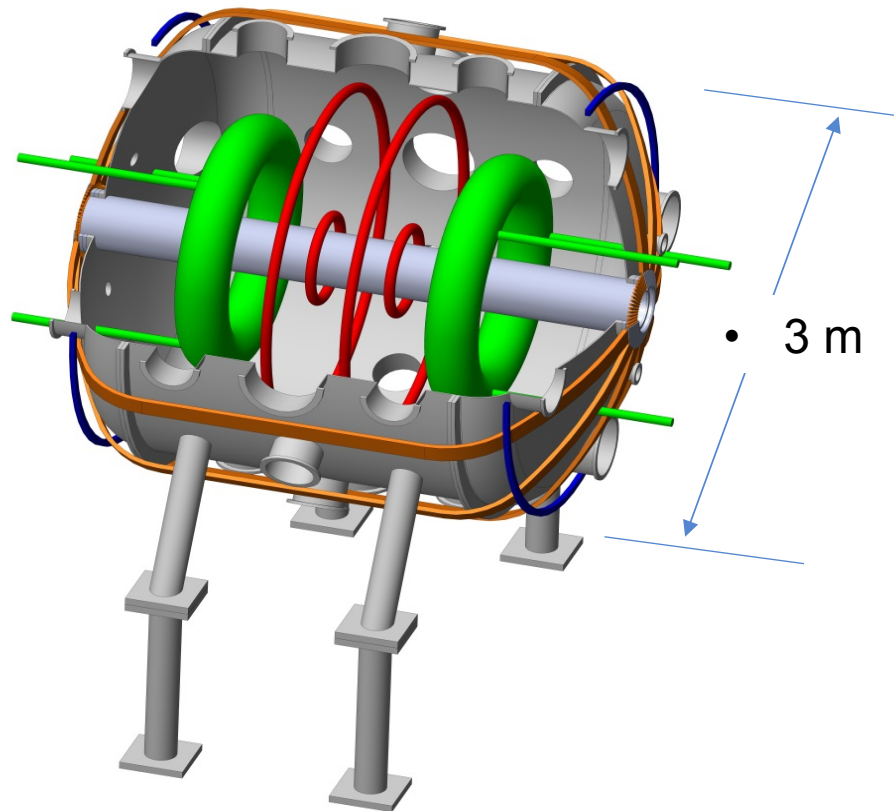
The Big Red Ball (Wisconsin)

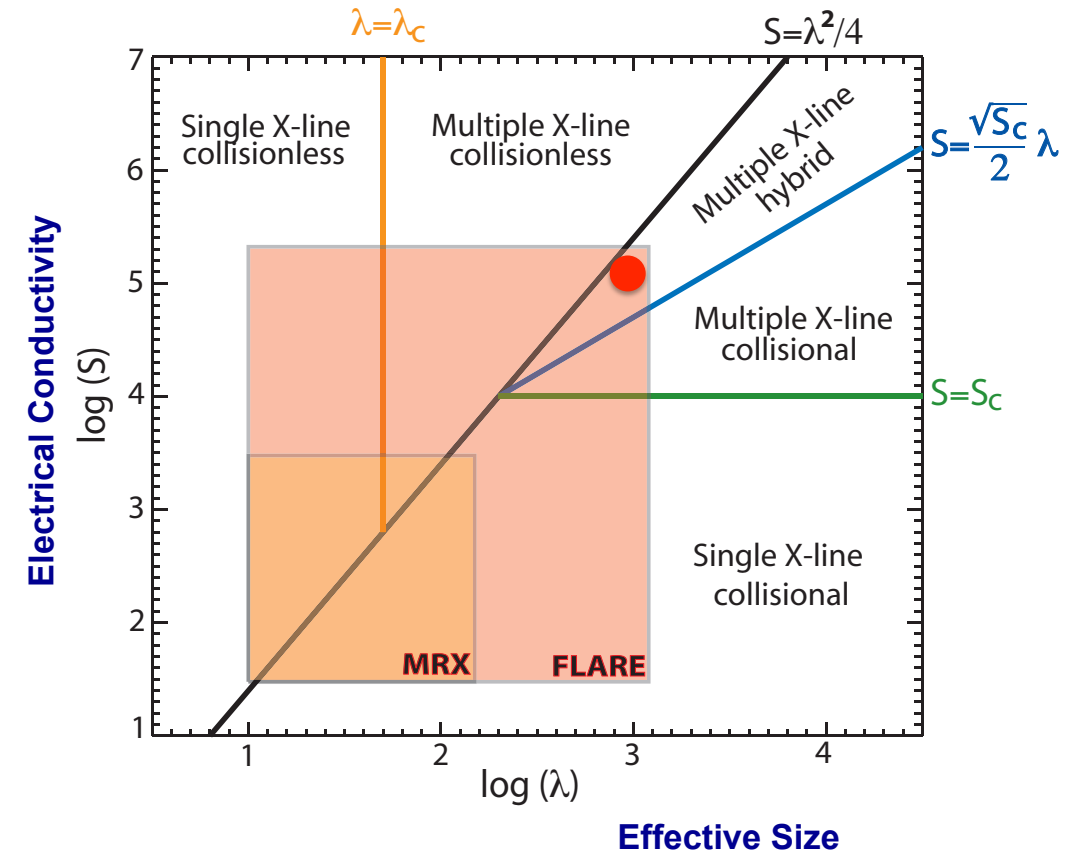Can add magnetic field and drive reconnection

New or recent experimental developments

- Extending basic experiments to new regimes

FLARE (Princeton)
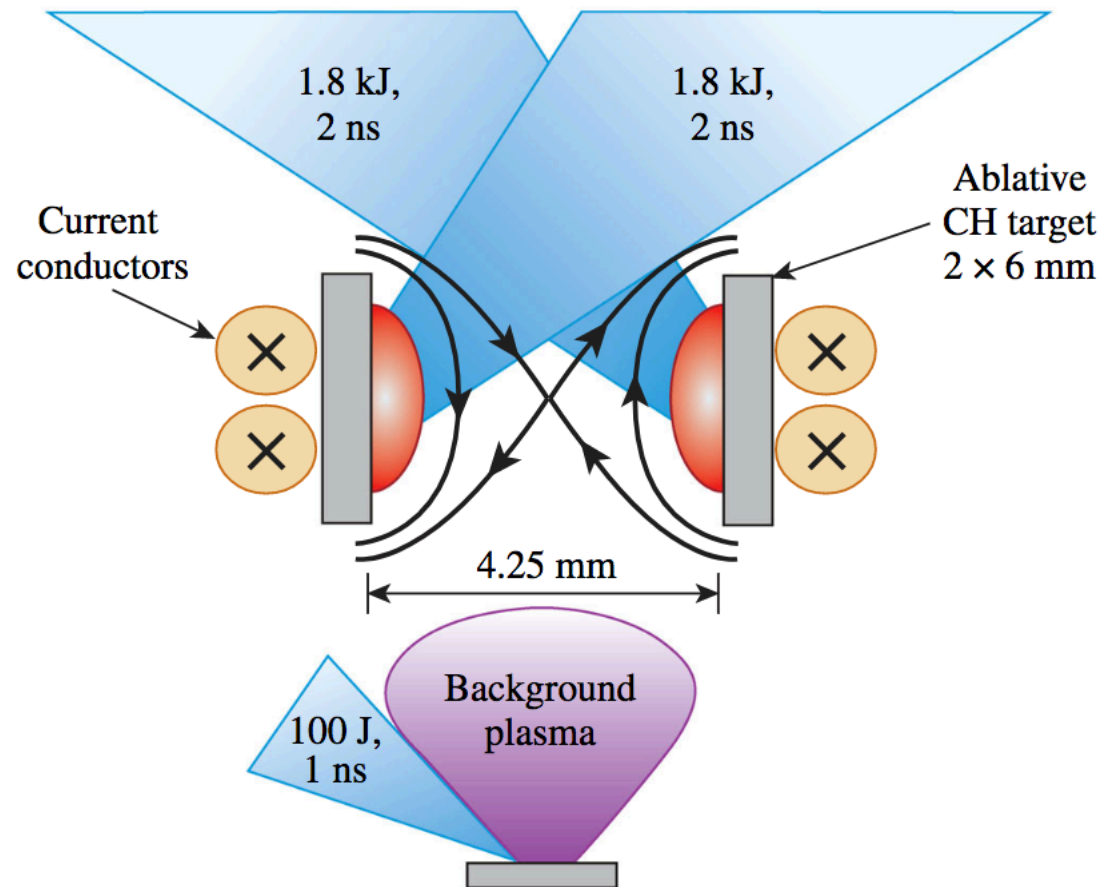
(Facility for Laboratory Reconnection Experiments

- 3 m

Access new regimes important for astrophysics

New or recent experimental developments

- Extending basic experiments to new regimes
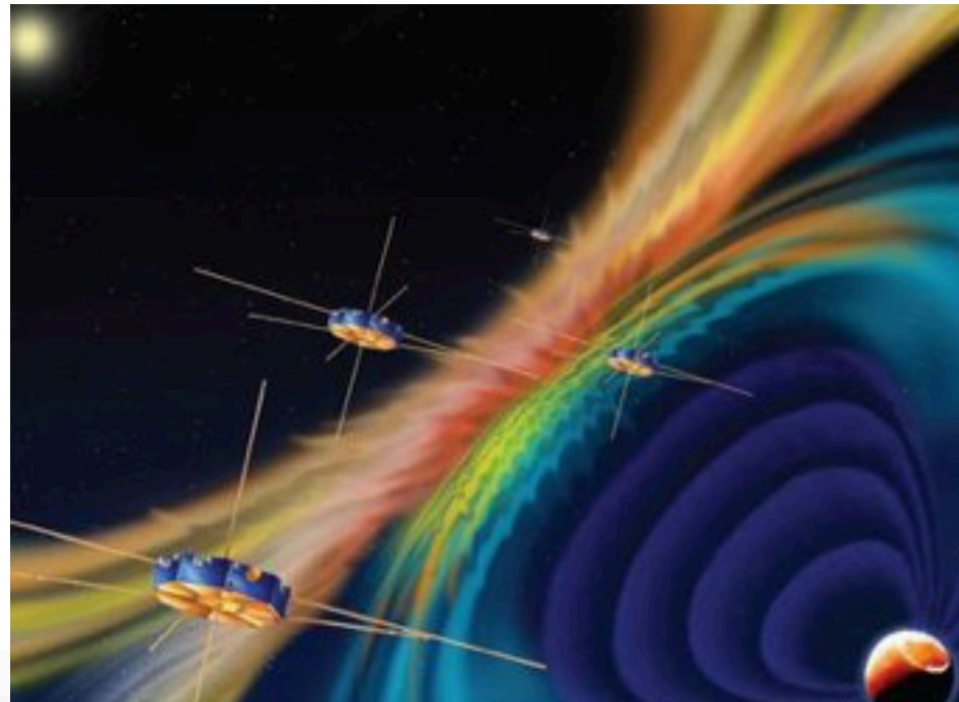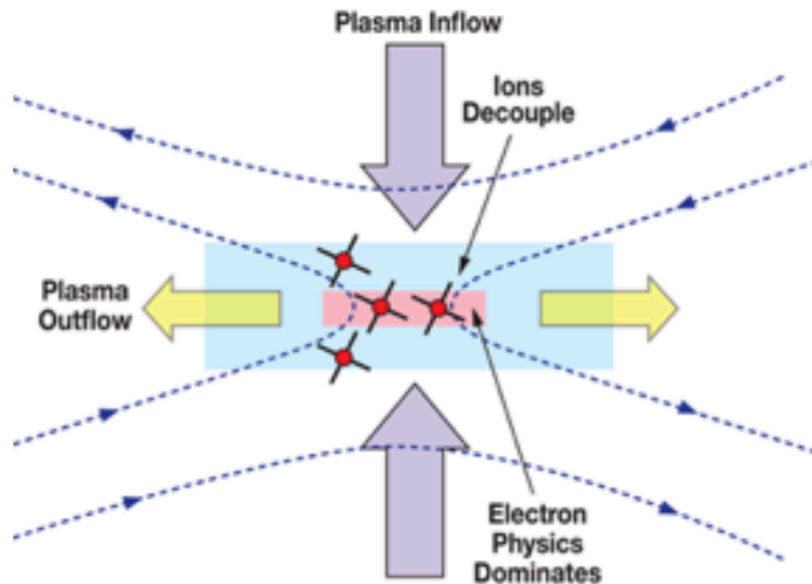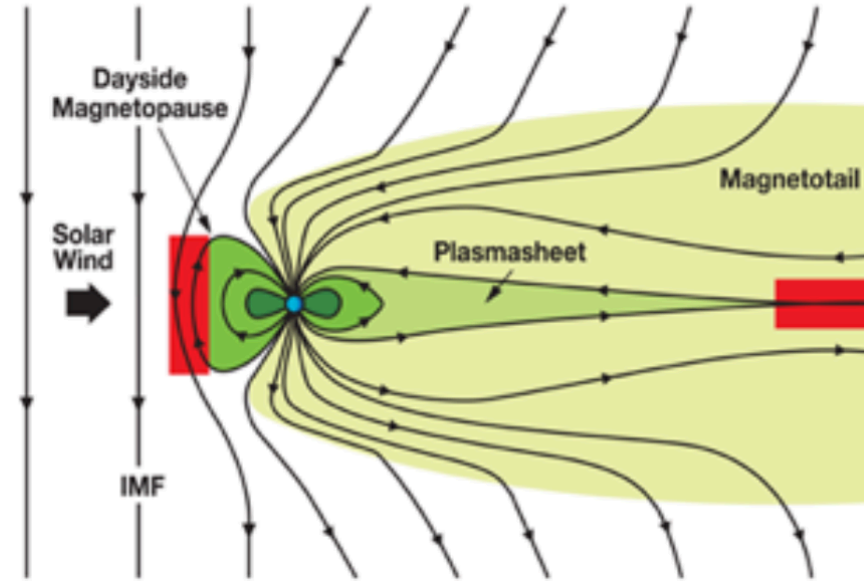- Studying reconnection in high energy density plasmas

Can access kinetic regimes

New or recent experimental developments

- Extending basic experiments to new regimes

- Studying reconnection in high energy density plasmas

- Space observations
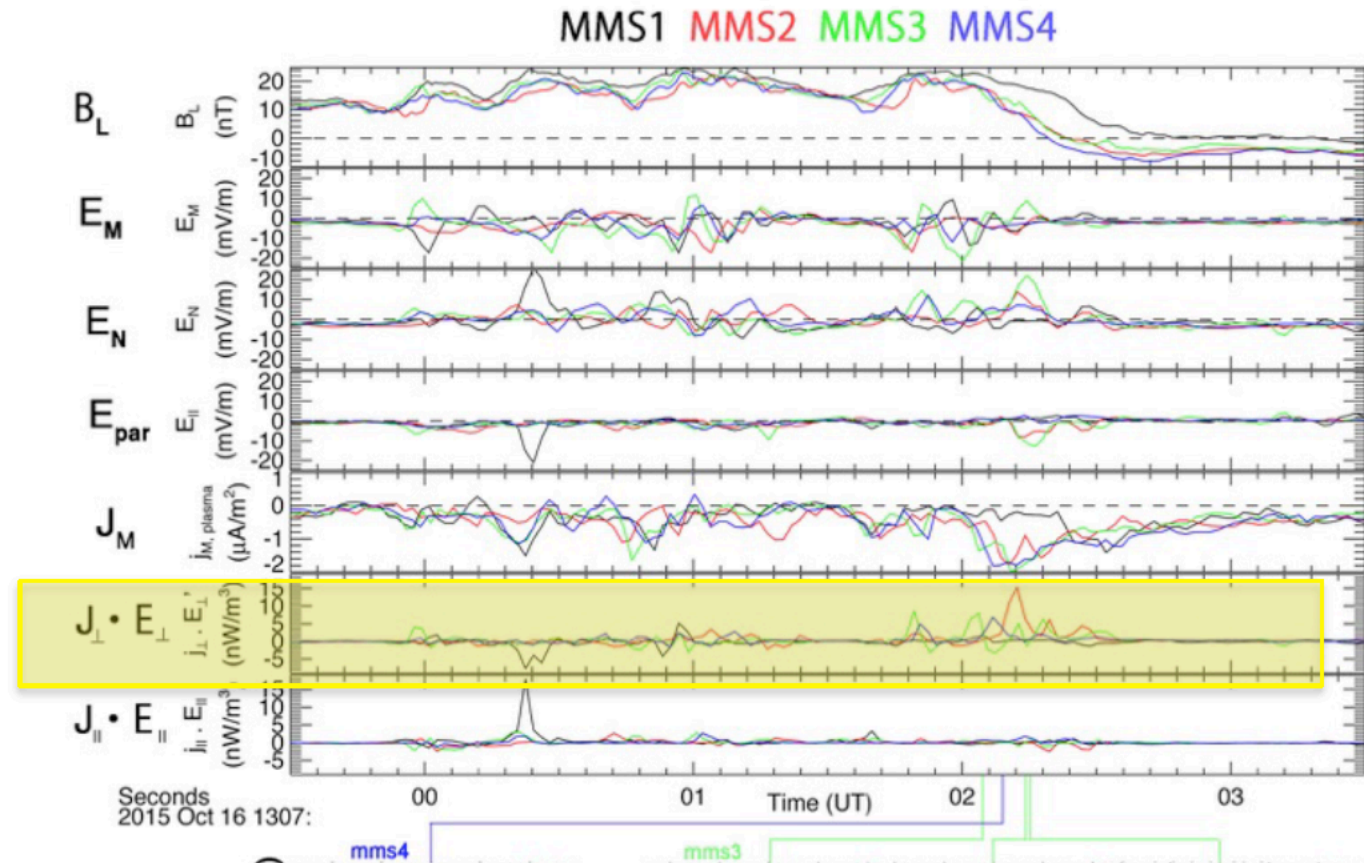
Reconnection in space - MMS

- **Magnetospheric Multiscale Mission "unlocking the secrets of the electron diffusion region"**

- **Launched March 12th 2015**

- **4 spacecraft in adjustable pyramid formation**

Provides detailed measurements

e.g., energy dissipation

$$j_\perp E_\perp$$

Just launched – Parker Solar Probe, to probe the outer solar corona